

THREE NEW SPECIES AND TWO NEW SUBSPECIES OF ERIOSOMATINAE (HOMOPTERA: APHIDOIDEA: PEMPHIGIDAE) FROM CHINA*

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Abstract The present paper describes 3 new species and 2 new subspecies, viz: *Colophina arctica* Zhang et Qiao sp. nov., *Tetraneura polychorema* Zhang, sp. nov. and *T. ulmicema* Zhang, sp. nov., *Kaltenbachella pallida dongtaiensis* Zhang, ssp. nov. and *Tetraneura capitatus agropyricena* Zhang, ssp. nov. All the type specimens are deposited in the Institute of Zoology, Academia Sinica.

Key words Aphidoidea, Pemphigidae, Eriosomatinae, new species, new subspecies

Colophina arctica Zhang et Qiao sp. nov. (fig. 1)

Apterous viviparous females Dorsal of head with 4~5 pairs of wax plates, pronotum with a pair of spinal wax plates and 1~2 pairs of marginal wax plates. Abdominal tergites I~VII each with 2 pairs of spinal wax plates, 1~2 pairs of pleural wax plates and 2~4 pairs of marginal wax plates. Tergite VIII bears a pair of small wax plates, each of which contains 10~15 small round wax cells.

The numbers of hairs 4 cephalic hairs, dorsal of head with 10 hairs, pronotum with 6~8 spino-pleural hairs, 2~4 marginal hairs; abdominal tergites I~V each with 4~8 spinal hairs, 4~6 pleural hairs and 2~4 marginal hairs; tergites VI~VII each with 4~6 marginal hairs, tergite VIII with 2 short hairs. Antennal segment III with 7 or 8 hairs; 1st tarsal segments chaetotaxy: 2, 2, 2. Cauda: 8~12, anal plate: 25~35, genital plate: 26~28.

Measurements (in mm) Body 2.000~3.300 in length, 1.100~1.600 in width; antennae 0.800, segments I~VI: 0.081, 0.078, 0.290, 0.093, 0.139, 0.116+0.020; ultimate rostral segment 0.260; hind femur 0.480, hind tibia 0.670, 2nd hind tarsal segment 0.200.

The new species is related to *Colophina arma* Aoki and *C. mostrifica* Aoki, but differs from them in: abdominal tergite IV with 10~16 wax plates (the latter: 17~24);

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antennal segment VI as long as segment II (the latter; longer); antennae 4-or 5-segmented (the latter; 6-segmented).

Holotype Apterous viviparous female; No. 6623-1-2-4, Oct. 18, 1977, Beijing City (Sanpu 40.3°N, 116.0°E, 800 m), by Wang Linyao and Zhong Tiesen; on *Clematis brevicaudata* DC.; paratypes 120 apterous viviparous females, 26 alate viviparous females, 1 first instar larva, 35 second instar larva; No. 6623, other data same as holotype.

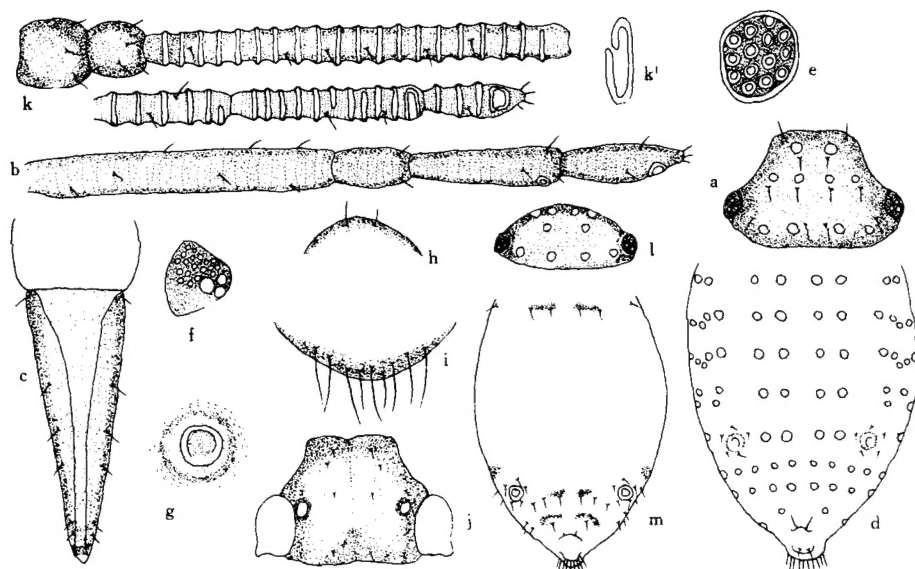


fig. 1 *Colophina arctica* Zhang et Qiao, sp. nov.

Apterous viviparous females: a. dorsal view of head, b. antennae, c. ultimate rostral segment, d. dorsal view of abdomen, e. dorsal wax plates, f. eyes, g. siphunculi, h. cauda, i. anal plate;

Alate viviparous females: j. dorsal view of head, k. antennae, k'. secondary rhinarium, l. dorsal view of head, m. dorsal view of abdomen.

Tetraneura polychorema Zhang, sp. nov. (fig. 2)

Apterous viviparous females Vertex with a pair of small marginal wax plates, each of which contains 5~7 wax cells; pro-, meso- and metanotum each with a pair of marginal wax plates, each of the plate contains 16~35 wax cells; abdominal tergites I~VII each bear a pair of marginal wax plates, each plate with 10~14 wax cells.

Numbers of hairs Dorsal of head bears 78~84 hairs, abdominal tergite VIII with 10 hairs; hairs on antennal segments I~VI: 5, 22 or 23, 17~19, 10 or 11, 28~35, 6~10, respectively; 1st tarsal segments each with 8 or 9 hairs; cauda: 2, anal plate: 32~41.

Measurements (in mm) Body 2.048 in length, 1.500 in width; antennae 0.621,

segments I ~ VI : 0.015, 0.092, 0.099, 0.060, 0.239, 0.062; ultimate rostral segment 0.181; hind femur 0.521; hind tibia 0.588; 2nd hind tarsal segment 0.101.

The new species differs from *Tetraneura yezoensis* Matsumura in: marginal wax plates poly-cells (the latter: single-cell); antennae 6-segmented (the latter: 5-segmented); length in proportion of segments III ~ VI : 100, 61, 241, 63 (the latter: III ~ V : 100, 150, 65); abdominal tergite VIII with 10 hairs (the latter: 4 hairs); anal plate with 36~38 hairs (the latter: 8 hairs).

Holotype Apterous viviparous female; No. 8708-1-2-1, Sep. 29, 1986, Gansu Province (Min County 34.4° N, 104.0° E, 2 300 m), by Zhang Guangxue, on Graminae; paratypes 1 apterous viviparous female, 2 4th instar alate larva, 1 3rd instar larvae; No. 8708, other data same as holotype.

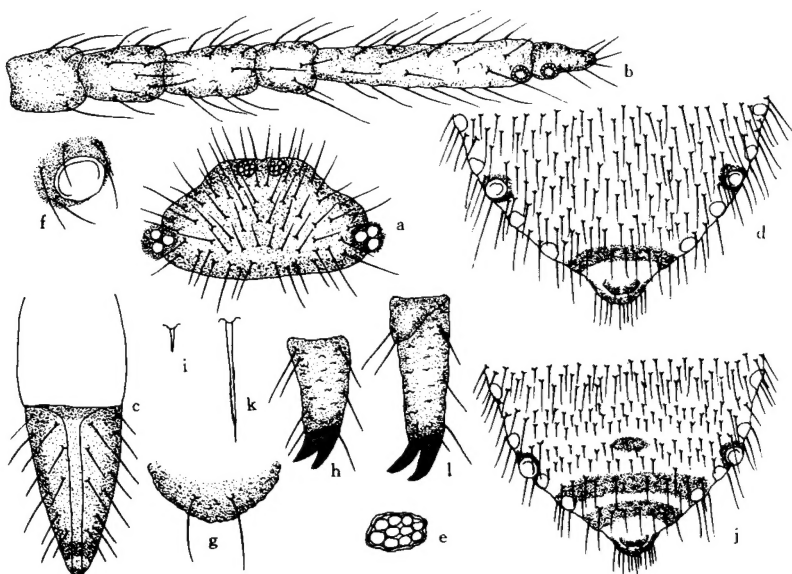


fig. 2 *Tetraneura (Tetraneua) polychorema* Zhang, sp. nov.

Apterous viviparous females: a. dorsal view of head, b. antennae, c. ultimate rostral segment, d. dorsal view of abdomen, e. dorsal wax plates on abdomen, f. siphunculi, g. cauda, h. tarsi, i. dorsal hair;

Alate viviparous females: j. dorsal view of abdominal tergites IV~VII, k. dorsal hair, l. tarsi.

Tetraneura ulmicema Zhang, sp. nov. (fig. 3)

Alate fundatrigenia Abdominal tergites I ~ VII each with a pair of small marginal wax plates, each of which contains 7 or 8 wax cells; tergites I ~ II each with a pair of spinal wax plates, each plate with 12~14 wax cells, spinal wax plate on tergite III ~ VII inconspicuous.

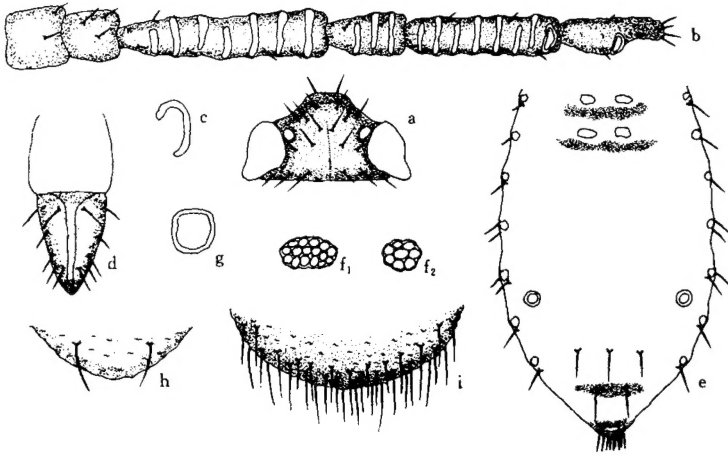


fig. 3 *Tetraneura (Tetraneura) ulmicema* Zhang, sp. nov.

Alate fundatrigenia; a. dorsal view of head, b. antennae, c. secondary rhinarium, d. ultimate rostral segment, e. dorsal view of abdomen, f₁. dorsal wax plate on abdomen, f₂. marginal wax plates on abdomen, g. siphunculi, h. cauda, i. anal plate

Numbers of hairs 2 cephalic hairs, dorsal hairs of head 18, abdominal tergites I ~ VII each with 2~4 marginal hairs, spino-pleural hairs on tergites I ~ VI shorter, tergite VII with 3 long spinal hairs, tergite VIII with 2 hairs; hairs on antennal segments I ~ VI: 2 or 3, 3 or 4, 6, 2, 5, 2+4 or 5; 1st tarsal segments chaetotaxy: 2, 2, 2. Cauda: 2, anal plate: 20~22.

Measurements (in mm) Body 2.278 in length, 1.088 in width; antennae 0.743, segments I ~ VI: 0.042, 0.049, 0.176, 0.065, 0.134, 0.063+0.023; ultimate rostral segment 0.090; hind femur 0.361, hind tibia 0.559, 2nd hind tarsal segment 0.118.

The new species is similar to *Tetraneura ulmi* (L.), but differs from the latter in alate fundatrigenia: secondary rhinarium on the base of antennal segment V near the base (the latter: far away the base), primary rhinaria on segment VI regular, nonforked (the latter: irregular, forked), processus terminalis 0.36× as long as the base of antennal segment VI (the latter: 0.20×), anal plate with 20~22 long hairs (the latter: 6 hairs).

Holotype Alate fundatrigenia: No. Y1684-1-5-1, June 15, 1979, Ningxia Hui Autonomous Region (Yinchuan City, 38.4°N, 106.2°E, 1300 m), by Gao Zhaoning; on *Ulmus glabra* Huds.; paratypes 18 alate fundatrigenia; other data same as holotype.

***Kaltenbachiella pallida dongtaiensis* Zhang ssp. nov. (fig. 4)**

Apterous viviparous females Dorsal of head with 2 pairs of wax plates, notum of each thoracic and abdominal tergites I ~ VI each with a pair of spinal wax plates, a pair of pleural wax plates and a pair of marginal wax plates, wax plates on tergite VII inconspicuous; each of wax plates contains 7~12 ellipse and double-ring wax cells.

Numbers of hairs Hairs on antennal segments I ~ V: 2 or 3, 2 or 3, 0 or 1, 3~5, 2 or 3 + 3 or 4; 1st tarsal segments chaetotaxy: 2, 2, 2. Cauda: 2 or 3, anal plate: 7 or 8, genital plate: 10.

Measurements (in mm) Body 1.817 in length, 1.126 in width; antennae 0.203, segments I ~ V: 0.042, 0.036, 0.038, 0.038, 0.040+0.009; ultimate rostral segment 0.084; hind femur 0.226, hind tibia 0.248, 2nd hind tarsal segment 0.065.

Alate viviparous females The numbers of hairs: 1 pair of cephalic hairs, 4 pairs of dorsal hairs on head; abdominal tergites I ~ VII each with 1~2 pairs of marginal hairs, 2~3 pairs of spino-pleural ones, tergite VIII bearing 5 hairs; hairs on antennal segments I ~ VI: 3, 2, 5~8, 3~5, 4~7, 3+2 or 3 hairs; 1st hind tarsal segments chaetotaxy: 2, 2, 2. Cauda: 3, anal plate: 6~8, genital plate: 12~19, genopophyses: 8 or 9.

The new subspecies is closely related to *Kaltenbachiella pallida pallida* (Haliday), but differs from the latter in apterous viviparous females: head with 4 wax plates dorsally (the latter: 8~10), pronotum with 3 pairs of wax plates (the latter: 2 pairs), tergite VIII without wax plate (the latter: 2 wax plates), mid-cells of wax plates inconspicuous; wax cells transversely ellipse (the latter: mid-cells long, wax cells around mid-cells

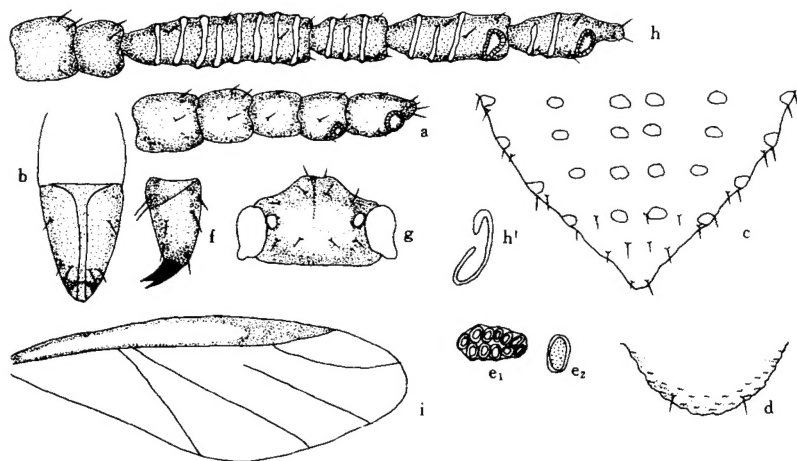


fig. 4 *Kaltenbachiella pallida dongtaiensis* Zhang, ssp. nov.

Apterous viviparous females: a. antennae, b. ultimate rostral segment, c. abdominal tergites N ~ VII, d. cauda, e₁. dorsal wax plates, e₂. wax cells, f. tarsi; Alate viviparous females: g. dorsal view of head, h. antennae, h'. secondary rhinarium, i. fore wing

round), marginal wax plate as big as spinal and pleural wax plates (the latter: bigger than); antennae 5-segmented (the latter: 4-segmented, rarely 5-segmented); alate viviparous female: primary rhinaria on antennal segment V round, ciliated (the latter: narrow ring-like, nonciliated), secondary rhinaria on antennal segments III ~ VI: 8 or 9, 2 or 3, 3~5, 2 or 3, respectively (the later: 10~12, 3 or 4, 1 or 2, 2 or 3).

Measurements (in mm) Body 1.300 in length, 0.470 in width; antennae 0.420, segments I ~ VI: 0.041, 0.036, 0.140, 0.052, 0.084, 0.070+0.011; ultimate rostral segment 0.067; hind femur 0.290, hind tibia 0.420, 2nd hind tarsal segment 0.030.

Holotype Apterous viviparous female: No. 7089-1-5-1, Oct. 1986, Jiangsu Province (Dongtai county, 32.8°N, 120.3°E, 50m), by Zhong Tiesen; on *Mentha haplocalyx* (on root); paratypes: 5 apterous viviparous females, 22 alate viviparous females: other data same as holotype.

***Tetraneura capitatus agropyricena* Zhang, ssp. nov. (fig. 5)**

Apterous viviparous females Dorsum wax plates on head inconspicuous, a pair of wax plates on vertex, pronotum with a pair of spinal wax plates and a pair of marginal wax plates, meso-and metanotum and abdominal tergites I ~ VI each with a pair of spinal wax plates, a pair of pleural wax plates and a pair of marginal wax plates, each plate with 2~4 wax cells; tergite VII with a pair of spinal wax plates, each plate with 11~14 wax cells, and a pair of marginal wax plates; wax plate on tergite VII absent.

Numbers of hairs Dorsal of head with 6 long anterior hairs and 12 short posterior hairs; pronotum with 8 short spinal hairs and 6 long pleural marginal hairs; abdominal tergites I ~ VII with 12 long marginal hairs and 12 short hairs; tergites I ~ VI each with 20-24 spino-pleural hairs, tergite VII with 6 sharp-pointed spino-pleural hairs, 10 marginal hairs (4 acute long marginal hairs among them), tergite VIII with 2 spinal hairs, 6~8 marginal hairs; hairs on antennal segments I ~ V: 3, 4 or 5, 3 or 4, 15~18, 2 or 3 + 3 or 4; tarsal segment each with 5~7 hairs; cauda: 3, anal plate: 81-83.

Measurements (in mm) Body 1.933 in length, 1.280 in width; antennae 0.348, segments I ~ V: 0.050, 0.055, 0.071, 0.120, 0.038+0.014; ultimate rostral segment 0.097; hind femur 0.201, hind tibia 0.235, 2nd hind tarsal segment 0.059.

The new subspecies differs from *Tetraneura capitatus capitatus* Zhang et Zhang in: hairs on abdominal tergite VII sharp-pointed at the apex, except a pair of capitate hairs (the latter: other hairs obtuse at the apex, except a pair of capitate spinal hairs and 2 pairs of capitate marginal hairs).

Holotype Apterous viviparous female: No. 8815-1-1-1, Aug. 1, 1987, Gansu Province (Gangu County, 34.7°N, 105.3°E, 1380m), by Zhang Guangxue; on *Agropyron cristatum* (L.); paratypes 12 apterous viviparous female, other data same as holotype.

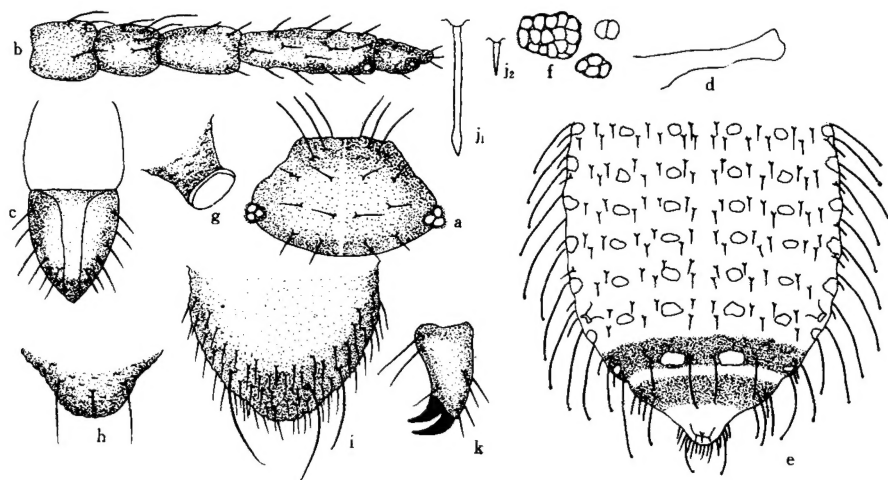


fig. 5 *Tetraneura capitatus agropyricena* Zhang, ssp. nov.

Apterous viviparous females; a. dorsal view of head, b. antennae, c. ultimate rostral segment, d. mesosternal furca, e. dorsal view of abdomen, f. dorsal wax plates, g. siphunculi, h. cauda, i. anal plate, j₁. marginal hair on abdomen, j₂. dorsal hair, k. hind tarsal segment.

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中国绵蚜亚科三新种二新亚种记述 (同翅目: 蚜总科: 瘿绵蚜科)

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摘要 本文记述了中国绵蚜亚科 Eriosomatinae 3 种新和 2 新亚种, 即: 北扣绵蚜新种 *Colophina arctica* Zhang et Qiao, sp. nov., 多室四脉绵蚜新种 *Tetraneura polychorema* Zhang, sp. nov., 食榆四脉绵蚜新种 *T. ulmicema* Zhang, sp. nov., 白卡绵蚜东台新亚种 *Kaltenbachiella pallida dongtaiensis* Zhang ssp. nov. 和钉四脉绵蚜冰草新亚种 *Tetraneura capitatus agropyricena* Zhang, ssp. nov. 模式标本保存在中国科学院动物研究所。

北扣绵蚜 *Colophina arctica* Zhang et Qiao, 新种 (fig. 1)

本新种与武扣绵蚜 *C. arma* Aoki 和怪扣绵蚜 *C. mostrifica* Aoki 有较近的亲缘关系, 不同在于: 腹部背片 IV 有 10~16 个蜡片 (后者: 17~24); 触角节 VI 与节 II 等长 (后者: 长于); 触角 4 或 5 节 (后者: 6 节)。

正模: 无翅孤雌蚜, No. 6623-1-2-4, Oct. 18, 1977, 北京 (三堡 800 m), 王林瑶和钟铁森采集; 寄主: 短尾铁线莲 *Clematis brevicaudata* DC.; 副模: 120 只无翅孤雌蚜, 26 只有翅孤蚜, 1 只 1 龄若蚜和 35 只 2 龄若蚜, No. 6623, 其它同正模。

多室四脉绵蚜 *Tetraneura polychorema* Zhang, 新种 (fig. 2)

本新种与瑕夷四脉绵蚜 *T. yezoensis* Matsumura 有较近亲缘关系, 不同在于: 缘蜡片多室 (后者: 单室); 触角 6 节 (后者: 5 节); 触角节 III~VI 长度比例: 100, 61, 241, 63 (后者: III~V: 100, 150, 65); 背片 VII 有毛 10 根 (后者: 4 根); 尾板有毛 36~38 根 (后者: 8 根)。

正模: 无翅孤雌蚜, No. 8708-1-2-1, Sep. 29, 1986, 甘肃 (岷县 2 300 m), 张广学采集; 寄主: 禾本科杂草; 副模: 1 只无翅孤雌蚜, 2 只 4 龄有翅若蚜和 1 只 3 龄若蚜, No. 8708, 其它同正模。

食榆四脉绵蚜 *T. ulmicema* Zhang, 新种 (fig. 3)

本新种与榆四脉绵蚜 *T. ulmi* (L.) 较近, 不同在于: 有翅干雌蚜触角节 V 基部的次生感觉圈靠近基部 (后者: 远离基部); 触角节 VI 原生感觉规则, 不分岔 (后者: 不规则, 分岔); 触角末节鞭部为基部 0.36 (后者: 0.20); 尾板有长毛 20~22 根 (后者: 6 根)。

正模: 有翅正雌蚜, No. Y1684-1-5-1, June 15, 1979, 宁夏 (银川 1 300 m), 高兆宁采集; 山榆 *Ulmus glabra* Huds; 副模: 18 只有翅干雌蚜, 其它同正模。

白卡绵蚜东台 *Kaltenbachiella pallida dongtaiensis* Zhang, 新亚种 (fig. 4)

本新种与指名亚种不同在于: 无翅孤雌蚜: 头部有 4 个背蜡片 (后者: 8~10 个); 前胸有 3 对背蜡片 (后者: 2 对); 背片 VII 无蜡片 (后者: 2 个蜡片); 蜡片中胞不明显, 周围蜡胞横椭圆形 (后者: 中胞长形, 周围蜡胞圆形); 缘蜡片约于中、侧蜡片同大 (后者: 缘蜡片大于中、侧蜡片); 触角 5 节 (后者: 4 节, 罕见 5 节); 有翅孤雌蚜: 触角节 V 原生感觉圈圆形, 有睫 (后者: 窄环行, 无睫); 触角节

Ⅲ～Ⅵ次生感觉圈数：8或9，2或3，3～5，2或3（后者：10～12，3或4，1或2，2或3）。

正模：无翅孤雌蚜，No. 7089-1-5-1. Oct. 1986，江苏（东台50 m），钟铁森采集；寄主：薄荷 *Mentha haplocalyx*（根部）；副模：5只无翅孤雌蚜和22只有翅孤雌蚜，其它同正模。

钉四脉绵蚜冰草 *Tetraneura capitatus agropyricena* Zhang, 新亚种 (fig. 5)

本新种与指名亚种不同在于：腹部背片Ⅶ除1对长缘毛尖端头状，其它各毛尖锐（后者：有1对中毛及2对缘毛头状，其它各毛顶端钝）。

正模：无翅孤雌蚜，No. 8815-1-1-1, Aug. 1, 1987，甘肅甘谷（1380 m），张广学等采集，寄主：冰草 *Agropyron cristatum*；副模：12只无翅孤雌蚜，其它同正模。

关键词 蚜总科，瘿绵蚜科，绵蚜亚科，新种，新亚种